

The wireless link cannot be established



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Checking the radio settings

Pre-configuration in the lab

Before installing the devices on site, we recommend to configure the basic parameters in the lab and to make sure that the link is establishing. Step-by-step instructions for a wireless link configuration are given in the "[Setting up a basic PtP link](#)" article. We also recommend to review the "[InfiLINK 2x2 / InfiMAN 2x2: Initial Link Configuration and Installation](#)" online course.



NOTE

During the configuration of the devices in a lab, take into account the following requirements:

- Make sure that the devices are not directed at each other in order to prevent the damage of the radio modules. It is recommended to place the devices at a distance from each other, with the antennas directed to the floor.
- The minimum transmit output power must be set on the devices.
- In case of using two R5000-Omx or R5000-Lmn devices, it is recommended to connect them directly using RF cables and RF attenuators with an attenuation of at least 40 dB for each polarization (the installation\deinstallation of the RF attenuators and of the RF cables should only be performed when the devices are switched off).
- The failure or damage of the device's radio module in case of disregarding these requirements is not covered by warranty.

Checking the radio parameters

If the wireless link is not establishing in lab conditions, make sure that the radio parameters are set to the values determined during the planning stage. The correct configuration of the device can be obtained using the Configuration Generator tool found on the [IW Academy](#) website. To establish a wireless link, one device must be configured as Master, the second (or all subscribers of the base station in the point-to-multipoint topology) as Slave. The following parameters must be identical on both devices:

- Channel Width.
- Frequency ("auto" settings are possible).
- Greenfield mode.
- Network SID.
- Security Key.

Web interface

To check the wireless link parameters go to the "Basic settings" - Link settings" section. Make sure that the "Enable Link" checkbox is on.

▼ Link Settings

▼ rf5.0

General Settings

Enable Link: ☒

Type: Slave

MultiBS: ☐

Mode: Fixed

VBR: ☐

Tx Power (dBm): 11

Auto: ☒ - 0 +

Node Name: CPE1

Scrambling: ☒

Trap gateway: ☐

Switch Border: ☐

Network Entry SNR (dB): Low 0 High 2

RX Attenuation (dB):

Multicast Mode: Unicast 3

Authentication Mode: public

ODR: Disabled

OTA: Passive

Log Level: normal

Add Profile

1

Disable profile: ☐

Channel Width (MHz): 40

Frequency (MHz): 5550

Frequency Range List:

Tx Bitrate (Kbps): Max

Auto: ☒ - 0 +

Channel Type: Dual Greenfield: ☒

Network SID: 10101010

Node ID: 60758

Security Key:

Copy Remove

Figure - Checking radio parameters in the web interface

Command line interface

Use the "*config show*" command to check the configuration via the CLI.

```

LINAR3#console>config show
# R5000 WANFlex H08S01-MINTV1.90.46 * Aug 28 2020 08:21:43 * SN:313659

#Environment
set CONFIG_GENERATED "WEB INTERFACE"

#System parameters
#Factory password mode: single
sys name LINAR3
sys prompt LINAR3
sys user root

#Radio module parameters
rf rf5.0 grid 40 4890-6050/10
rf rf5.0 grid 20 4890-6050/10
rf rf5.0 grid 10 4890-6050/5
rf rf5.0 grid 5 4890-6050/5
rf rf5.0 band 40
rf rf5.0 mimo greenfield
rf rf5.0 freq 5550 bitr 300000 sid 10101010 burst
rf rf5.0 txpwr 10 pwrctl distance auto(0)

#DFS configuration
dfs rf5.0 dfsoff
dfs rf5.0 freq auto
dfs rf5.0 cot off

#Interfaces parameters
ifc lo0 127.0.0.1/32
ifc lo0 9.9.9.9/32
ifc eth0 media auto up
ifc eth0 10.10.20.2/24
ifc rf5.0 up
ifc svi1 info "L2 Management Interface"
ifc svi1 up
# group 1
ifc svi1 192.168.103.82/24

#MINT configuration
mint rf5.0 -name "LINAR"
mint rf5.0 -nodeid 13659
mint rf5.0 -type master
mint rf5.0 -mode fixed
mint rf5.0 -scrambling

```

Команда:

Figure - Checking radio parameters via the CLI

Checking the status of the radio interface

Make sure that the radio interfaces of both devices are in the "Up" state.

Interface Statistics

Interface	MAC Address	Status	Mode
eth0	00043503fa96	Up	100 Mbps Full Duplex
eth1	00043513fa96	Up	--
rf5.0	00043523fa96	Up	300 Mbps / 5550 MHz / 40 MHz / 11 dBm / GF / DFSONLY
svi1	02043503fa96	Up	Switch Group #1

Figure - Checking the interface status

If the status of the interface is "Down", enable the radio interface in the "Network settings" section by clicking the checkbox.

Network Settings

▶ eth0 Up: ☒ Description: DHCP: ☐

▶ eth1 Up: ☒ Description: DHCP: ☐

▶ rf5.0 Up: ☐ Description: DHCP: ☐

▶ svi1 Up: ☒ Description: DHCP: ☐

Figure - Changing the interface status

If the device does not have a radio interface, the reason for such behavior can be the recovery mode present during the reset of the device using the [ERConsole](#). Complete the recovery process by returning the device to the factory settings from the Maintenance section.

Pay attention to the red values of the parameters in the interface statistics "Mode" column:

- Operating frequency - red value of this parameter indicates an absence of data transmission due to the spectrum scanning by the DFS tool;
- TX Power - red value for this parameter may indicate a problem with the transceiver's hardware.

Checking the firmware version

Web interface

In the "Maintenance" section, make sure that the same software version is installed on both devices: MINT or TDMA. Instructions for switching between the MINT and TDMA software versions are available in the article "[How to upgrade your network from MINT to TDMA](#)". We recommend to update the devices to the latest beta software version.

Firmware

Firmware Version:	H11S11-TDMAv2.1.25
Build Date:	Aug 28 2020 08:17:37
Serial Number:	260758
Part Number:	SkyMAN R5000-Lmn/5.300.2x300
Platform:	Processor: MPC8309 400 MHz
Uptime:	5 days 17:13:56
Last Reboot Reason:	manual delayed restart

Figure - Checking the firmware version

The latest software versions can be downloaded from the official InfiNet [FTP server](#).

Command line interface

To upload the software via the command line, use the "*flashnet*" command described in the "[General Purpose Command Set](#)" article.

Checking the installation requirements

Checking the network infrastructure

If the link is not established after the installation on site, make sure that the devices were not damaged during shipping, check the integrity of the network infrastructure, the cables and the power supplies.

Checking the installation requirements

Check if the suspension height, azimuth and elevation of the antenna match with the values obtained from [InfiPLANNER](#). Make sure that the obstacles on the path profile are not higher than those specified during the planning phase.

Alignment Data



Site G

Latitude: 43.2538611131

Longitude: 42.4993906081

Antenna height: 15 m

Antenna tilt angle: 15.39°

Bearing: 336.10°

Magnetic bearing: 328.78°

Magnetic declination: 7.31°

Interference: -83 dBm

Temperature: 0 °C



Site H

Latitude: 43.3452483968

Longitude: 42.4436864915

Antenna height: 15 m

Antenna tilt angle: -15.47°

Bearing: 156.10°

Magnetic bearing: 148.76°

Magnetic declination: 7.34°

Interference: -82 dBm

Temperature: -27 °C

Figure - InfiPLANNER report with installation data

Interference detection

Web Interface

Using the built-in Spectrum Analyzer tool, scan the air on both sides of the link to make sure there is no interference that could corrupt the signal on the device's operating frequency and on the adjacent frequencies. The current modulation (bit rate) will be selected by the device depending on the carrier to interference and noise ratio (CINR). To operate at higher modulations, the CINR parameter must be greater or equal to 28 dB. To get accurate information about the frequency, hover the mouse cursor over it. The pop-up window below provides information about frequency, noise level (in dBm), maximum signal level (Max RSSI), average signal level (Average RSSI). The "High RSSI" indicator allows to estimate the number of signal sources. If the value differs significantly from the average RSSI, then there are several interference sources. The indicators show the signal level in dB, while the signal in dBm is indicated in parentheses.



NOTE

It is recommended to run the spectrum scanning simultaneously on both devices to avoid a misrepresentation due to the signal received from the remote device.

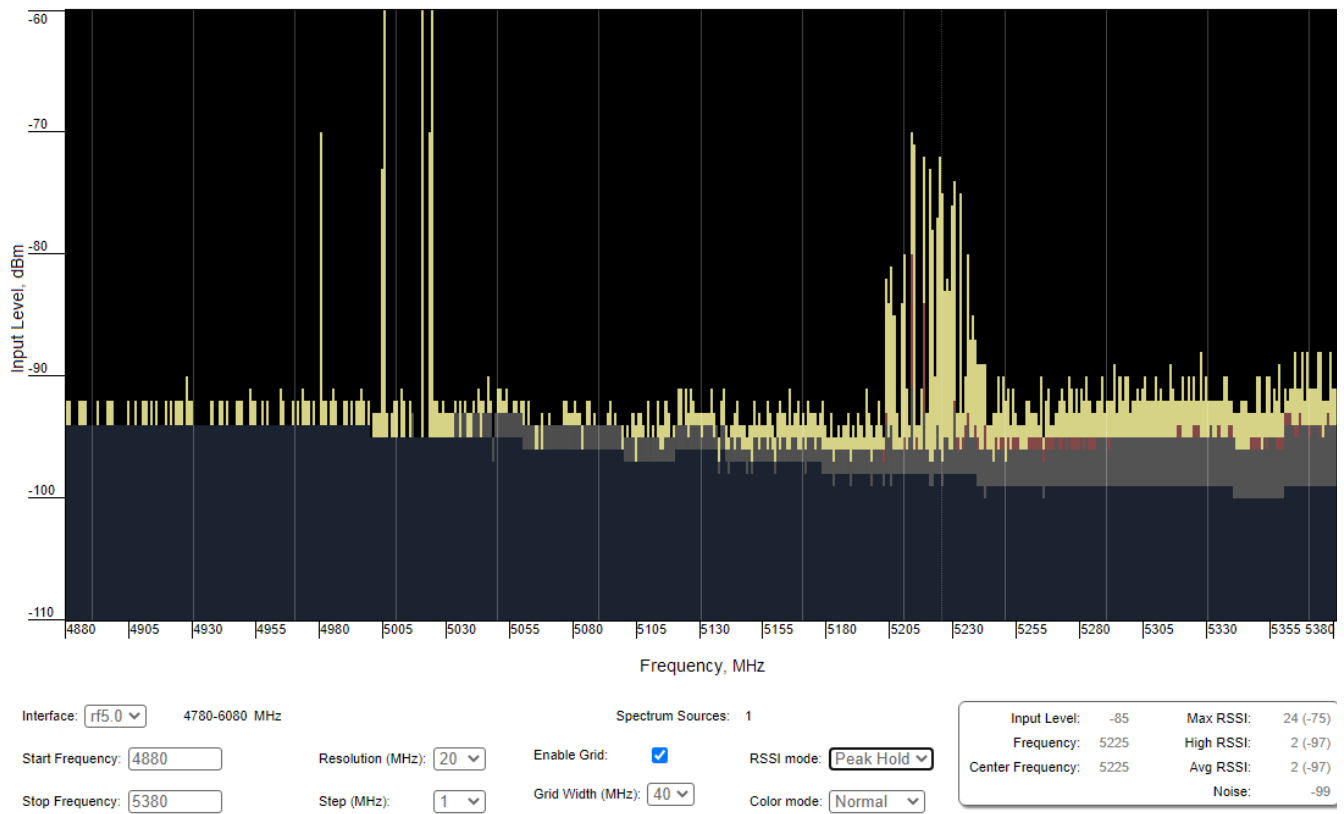


Figure - Spectrum analyzer

Command line interface

The radio environment analysis is also available via the command line using the "[muffer sensor](#)" command.